

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : Attorney Docket No. 2006_1023A
Zhikai WANG et al. : Confirmation No. 9015
Serial No. 10/584,299 : Group Art Unit 1796
Filed June 23, 2006 : Examiner Michael L. Leonard
ADHESIVES : Mail Stop: AMENDMENT

DECLARATION UNDER 37 C.F.R. § 1.132

Commissioner for Patents
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Sir:

Zhikai WANG declares:

That he is the first named Inventor of the present application.

That he is familiar with the prosecution of the present application and notes that the claims have been rejected over Norlin et al. (US 2002/0099110) and Acevedo et al. (US 7,189,781).

That the cited references neither disclose nor remotely suggest the invention as presently claimed.

The compositions and formulations as presently claimed are suitable as pressure sensitive adhesives (PSA), but unsuitable for coatings and adhesives (sealants/sealers), for which the cited references are employed.

According to Wikipedia, the definitions of coatings, adhesives (sealants/sealers) and pressure sensitive adhesive (PSA) clearly indicate that the material requirements for these 3 different applications are essentially and significantly different.

To meet the highly specific "pressure-sensitive" requirements sought herein, the PSA materials have to be both viscous and elastic. In a normal case, a viscous property will positively impact the adhesion performance while negatively affect any cohesion performance.

On the contrary, the elastic property of the material provides cohesion performance while reducing adhesion performance. Obtaining a **proper balance** between the viscous and elastic properties is the key factor to achieve a high performance for a PSA product.

To arrive at the present invention, almost all of Applicants' technical efforts focused on pursuing a good balance between viscous and elastic properties in the same material system. In order to be "viscous" at the application process temperature (normally, a room temperature), a PSA material has a Tg (glass transition temperature) below room temperature (25°C), before and after cure. Under this condition, the material is always rubbery and tacky.

Neither coating materials of Norlin nor adhesive materials nor sealant materials require this special property.

A coating material could be a liquid (tacky) before cure (hardening), but it should be tack-free solid after cure, so does an adhesive/sealant/sealer product.

The following are definitions of coating, adhesive and pressure sensitive adhesive obtained from Wikipedia:

A **coating** is a covering that is applied to the surface of an object, usually referred to as the substrate. In many cases coatings are applied to improve surface properties of the substrate, such as appearance, adhesion, wet-ability, corrosion resistance, wear resistance, and scratch resistance. Coating involves the application of a thin film of functional material to a substrate, such as paper, fabric, film, foil or sheet stock. Coatings may be applied as liquids, gases or solids. Coating materials could be solvent-based, water-based or 100% solid (liquid or powder). After coatings cure (harden), the final state of coatings is normally a hard solid state.

An **adhesive**, or **glue**, or **sealant/sealer** is a mixture in a liquid or semi-liquid state that adheres or bonds items together. The types of materials that can be bonded are vast but they are especially useful for bonding thin materials. Adhesives **cure (harden)** by either evaporating a solvent or by chemical reactions that occur between two or more constituents. Adhesives are an advantageous for joining thin or dissimilar materials, minimizing weight, and when a vibration dampening joint is needed. A disadvantage to adhesives is that they do not form an instantaneous joint, unlike most other joining processes, because the adhesive needs time to cure.

Pressure sensitive adhesives (PSA, self adhesive, self stick adhesive) are highly specialized adhesives which form a bond when pressure is applied, to marry the adhesive with the adherend. No solvent, water, or heat is needed to activate the adhesive. It is used in pressure

sensitive tapes, labels, note pads, automobile trim, and a wide variety of other products. As the name "pressure sensitive" indicates, the degree of bond is influenced by the amount of pressure which is used to apply the adhesive to the surface.

Surface factors such as smoothness, surface energy, removal of contaminants, etc. are also important to proper bonding. PSAs are usually designed to form a bond and hold properly at room temperatures. PSAs typically reduce or lose their tack at cold temperatures and reduce their shear holding ability at high temperatures; specialty adhesives are made to function at high or low temperatures. It is important to choose an adhesive formulation which is designed for conditions to be encountered when employed for its intended use.

The radiation curable composition of the present invention is solely radiation curable and is not a dual cure (radiation curable and moisture curable) composition.

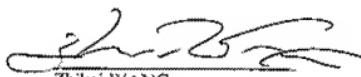
The urethane (meth)acrylate polymer of Formula 1A of present claim 17 does not contain any functional group as those described in Acevedo that are capable of polymerizing upon exposure to moisture. The curable functional groups present on the urethane (meth) acrylate polymer of Formula 1A are radiation curable only.

Therefore, the pressure sensitive adhesive compositions of the present invention, which are tacky before and after cure, are not suitable for coating area or adhesive or sealant/sealer area (in contrast to the compositions of Norlin and Acevedo) and vice versa.

He further declares that all statements made herein of his own knowledge are true, and that all statements on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

07-12-2010

Date



Zhikai WANG